as necessary and indispensable for the detection of conscious or unconscious aggravations by the patients or else supplementary to possible omission in early investigations, the expert otologist finding that, in case of an injury to the ear, the importance of the blow or of the shell shock bears an indirect relation often to the auditory and static disorders. Undue precipitancy in diagnosis is deprecated, and a review of each case in six months or a year for a definite opinion is insisted upon.

HYGIENE AND PUBLIC HEALTH

UNDER THE CHARGE OF
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Studies on Experimental Scurvy in Guinea-pigs.—Jackson and Moore (*Jour. Infect. Dis.*, September, 1916, xix, No. 3) studied the occurrence of a peculiar infection in a number of guinea-pigs in the laboratory of St. Luke's Hospital, Chicago, concerning the effect of milk diets on guinea-pigs. The animals appeared partially paralyzed and the muscles and knee-joints were swollen and tender. The diet in addition to green food and water consisted largely of milk from a cow having experimental streptococcal mastitis. Experiments were carried out to determine what factors in the diet were responsible for the condition. Groups of animals were fed on various combinations of food chiefly in relation to milk or milk constituents to test both the production of the disease and its prevention. Experimental scurvy was produced in guinea-pigs by diets of pasteurized, raw, boiled, skimmed and condensed milk, streptococcus broth and milk, milk and green vegetables, thyroid extract and milk, casein and water, oats, and bread and bran. Scurvy was not prevented by adding calcium lactate to milk or injecting it into guinea-pigs on a milk diet, nor did the injection of olive oil have any effect in preventing scurvy in these animals. Those pigs fed on a diet of cream, or of olive oil added to milk, showed a "fat constipation" from the effects of which they soon died. Milk-broth cultures of Streptococcus viridans and Streptococcus hemolyticus, water, lactose water, lime water and goat's milk did not produce typical scurvy in the animals whose diet they comprised. Guinea-pigs living on a milk diet showed, as clinical symptoms, preliminary loss of weight, swelling of the joints, and occasionally hyperemia of the gums. Fractures of the long bones near the epiphyseal ends and deformities were commonly observed. The most important pathological lesions noted at postmortem examinations were hemorrhages, found in the muscles, bone marrow, tooth pulp, costochondral junctions and sometimes in the skin and lymph glands, enlargements of the ends of the long bones and swollen lymph glands. Microscopically the earliest lesions which were seen were a slight necrosis and hemorrhage in which coccus-like bodies were frequently observed. The only evidence of inflammation is slight fibrin foundation and the presence of numbers of mononuclear and polymorphonuclear eosinophile cells. The average time for the onset of symptoms with the pasteurized milk diet was nineteen days; with other diets from eleven to nineteen days. The earliest lesion was observed on the tenth, the latest on the twenty-ninth day. The disease was afebrile and produced no great increase in leukocytes. Cultures of the heart's blood from guinea-pigs with scurvy from milk diet were sterile and passage of blood from these animals to normal animals did not produce the disease in the latter.

Trench Fever.—HURST (*Lancet*, October 14, 1916, cxci, No. 4859) states that among the cases of fever occurring in the British armies in France and Salonica, a considerable number existed in which the diagnosis was doubtful and which were designated as pyrexia of unknown origin. In the early summer of 1915, a number of cases of fever in which two periods of pyrexia were separated by a normal interval were recognized and called trench fever. Later, other investigators described cases of the same disease and showed that there are two distinct clinical types of it. The cases only occurred among officers and men living near the trenches and in the personnel of hospitals and it was for this reason that the name "trench fever" was given to it, although actual residence in the trenches was not an essential factor. Many cases of the first type occurred in the armies in France and Flanders early in 1915 and later in the same year, many cases of the second type occurred. Since December, 1915, the disease has also been very prevalent in Salonica where the infection was probably brought from France. Although trench fever resembles paratyphoid fever during the first pyrexial period, although it is of a characteristic relapsing type and although it may simulate malaria in the short sharp attacks, yet blood taken at different periods has always been sterile, the Widal reaction has always been consistently negative and no spirochete or malarial plasmodium has been found in blood films taken during febrile and afebrile periods. McNee and Renshaw found that trench fever could be transmitted to healthy men by intramuscular or intravenous injection of the blood of patients with the disease. The red corpuscles have the same effect but not the plasma and serum. One attack does not protect against reinfection. No fatal cases have occurred so the true nature of the disease remain unknown, although the striking periodic character of the fever, the considerable increase in proportion of large mononuclear leukocytes and the evidence of an intracorpuscular infection suggest a protozoal origin. All the evidence collected as to the method of propagation seems to point to the fact that the disease is conveyed by lice; cold wet and fatigue seem to be exciting causes in a man who has become infected but shows no symptoms. The author states that as the result of his observations he has concluded that the incubation period is from fifteen to twenty-five days. The disease usually begins without any premonitory symptoms except a feeling of malaise. The patient complains of severe headache, backache and pains in the legs, shivers and often sweats profusely. The onset is sometimes very abrupt; the patient is giddy, shivers and may be very short of breath. He has a pain in his left side and pain and tenderness in the legs, especially in the shins. Leukocytosis is often present and the percentage of hemoglobin is generally about 80 though the number of red corpuscles is undiminished. In the short form of trench fever, the temperature rises rapidly to between 102° and 104° F. and on the third or fourth day suddenly falls. The pulse rate is only slightly increased. In the long or periodic type, the temperature rises to between 101° and 104° F. on the first evening, and the pulse is usually accelerated in proportion with the temperature. This initial attack is variable in duration. All the symptoms disappear with the fall of temperature at the end of the initial attack and the patient is well for from two to ten days. Then the general symptoms reappear although not in so severe a form. Recurrence follows periodically, the maximum temperature always being reached in the evening. The diagnosis can only be made with certainty from a study of the temperature chart but the association of pyrexia with tender shins is very suggestive of trench fever. The possibility of malaria and relapsing fever should be excluded in making the diagnosis. No fatal cases of trench fever have occurred and the patient never seems seriously ill, except occasionally for a short time in the first attack. The total duration of the periodic type of trench fever from the onset to the end of the last attack is usually between four and six weeks. As the disease is probably conveyed by lice, which become infected by biting a patient during an attack, efforts should be made to keep troops free from them. All cases of trench fever should be isolated and the patients' bedding and clothes thoroughly disinfected. No treatment has been found which prevents the periodic return of attacks or which is really effective in overcoming the pain although some relief may be obtained if constipation is prevented by aperients, and hot applications are used for the pain.

PATHOLOGY AND BACTERIOLOGY

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Experimental Cloudy Swelling of the Kidney in Rabbits.—The term cloudy swelling is a most indefinite one to the pathologist. As it was originally applied by Virchow the term indicated a swelling and tur-